

The Weather Whisper

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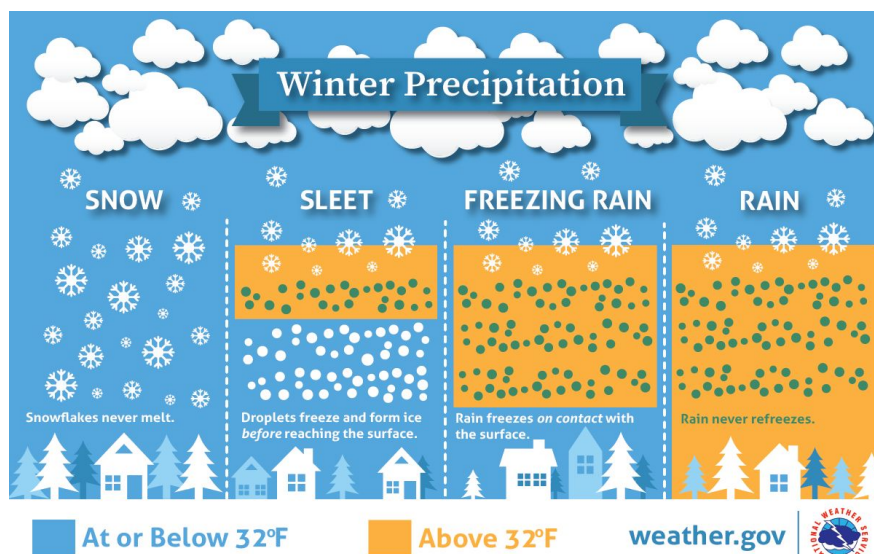
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The Challenge of Winter Forecasting

Brooke Hagenhoff, Meteorologist

When it comes to forecast challenges, determining winter weather precipitation types and accumulation might be one of the most difficult. Precipitation type can be extremely sensitive to temperatures, not just at the surface but at a depth over a mile above the surface. A temperature difference of just half a degree can change the precipitation type, and that can have a BIG impact on accumulations.

How does that temperature profile influence the precipitation type? It is common to see elevated warm layers above the surface and depending on the depth of the layer and distance above the surface, the precipitation that falls through the layer may change, as shown in the graphic at right.



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Accumulations depend heavily on the liquid equivalent of precipitation forecasted and the snow to liquid ratio. In Iowa, the average snow to liquid ratio is 12" of snow for every 1" of liquid, though ratios of anywhere from 8" to 1" all the way to 20"+ to 1" have been observed here. So, if the forecast is for $\frac{1}{2}$ " of liquid, we might expect around 6" of snow. If the forecast is off by only $\frac{1}{4}$ " - something we wouldn't even notice if it were rain - the snow accumulation would change by nearly 3". In other cases, perhaps the liquid equivalent is forecasted accurately but the snow to liquid ratio is different.

What happens when you mix this all together, seeing changes in the warm layer depth, liquid equivalent, and snow to liquid ratios? A transition from rain/freezing rain/sleet to snow later or earlier influences the accumulations, as the liquid equivalent is distributed differently between each of the precipitation types. It all results in a messy situation.

Day in the Life: Basic Structure

Brooke Hagenhoff, Meteorologist

Welcome to our newest article series, "Day in the Life". This series will spotlight each position at NWS Des Moines, highlighting the duties on a typical day and how those change based on the forecast. Most of our staff is made up of operational meteorologists and we will highlight the three shifts that all of the meteorologists rotate through. We will also highlight the specialized duties of our technicians, IT, and administrative staff, plus our Warning Coordination Meteorologist and Science and Operations Officer. With this first article we'll set up the typical staffing structure of this 24/7 office. Future articles will discuss the duties of each position further.

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The operations floor at NWS Des Moines during the historic December 15, 2021 tornado and high wind event.

There are two meteorologists on each shift at NWS Des Moines, with a one hour difference in start time to allow for overlap with preceding and proceeding shifts. Typically, the two meteorologists on shift will split the shift duties so that one focuses on the details of forecast creation and the other focuses on data quality control and messaging the forecast. This happens for the day, evening, and overnight shifts. The rest of the office staff will also keep basic daytime hours Monday-Friday, though in extreme circumstances may be called in on weekends or at night. The NWS Des Moines staff consists of:

5 Lead Meteorologists
9 Meteorologists
2 Electronics Technicians
1 Observation Program Leader
1 Hydrologist

1 Administrative Support Assistant
1 Electronics System Analyst
1 Information Technology Officer
1 Warning Coordination Meteorologist
1 Science and Operations Officer
1 Meteorologist-in-Charge

Stay tuned as we dive into each position in the months ahead! In the meantime, [this video](#) gives a basic overview of the office and a tour of NWS Des Moines (content starts at the 3:15 mark).



STAFF SPOTLIGHT

Cory Martin

Radar Meteorology, IDSS/Event Support, Web Application Development

Background

Cory developed a passion for weather at a young age and began making frequent visits to his local National Weather Service office starting early in grade school. His NWS career began in college with internships at the offices in Norman, OK and his hometown of Aberdeen, SD. Upon graduation from the University of Oklahoma (Boomer Sooner!) in 2011, Cory began his full-time work at the NWS office in North Platte, NE. He then moved NWS Des Moines in 2017 and has greatly enjoyed working and living in central Iowa!

Cory's interests at work are wide-ranging, but has strived for expertise in mesoscale and radar meteorology. He is also active with web-based application development & support.

In his personal life, Cory enjoys spending time with his wife Amber and two dogs, going for a long run, following OU football, and is an avid home brewer. On occasion you may also find him on top of a tall mountain peak in Colorado or walleye fishing with his Dad.



Meteorologist



12 Years of Service

On the Cover:

A rare sunny morning at NWS Des Moines on January 23rd in the middle of a very cloudy, foggy stretch of weather.



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